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# On some Australian species of *Cyathiger* King (Coleoptera: Pselaphidae)

by

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With 9 figures

## ABSTRACT

**On some Australian species of *Cyathiger* King (Coleoptera: Pselaphidae).** — *Cyathiger bellendeni* sp. n. from Queensland is described and illustrated, and additional characters are given for *C. kingi* Chandler and *lei* Chandler.

The pselaphid genus *Cyathiger*, originally erected for an Australian species, is predominantly Oriental where it exhibits high diversity. Only four species are known from Australia, two from New South Wales and two from Queensland (CHANDLER, 1986). A third species from Queensland is added here together with supplementary descriptions of the other species from Queensland. The material is preserved in the collections of the Australian National Insect Collection, CSIRO, Canberra (ANIC) and the Queensland Museum, Brisbane (QM). I thank Dr. J. F. Lawrence and Dr. G. B. Monteith for the loan of this material.

The present paper differs from that of Chandler (1986) in the interpretation of body length and number of antennal segment. The body length is measured from the anterior margin of the head to the apex of abdomen when the specimen is fully stretched. The dimensions given here are, therefore, slightly larger than the ones of Chandler. The number of antennal segments in *Cyathiger* varies from 7 to 11. Following degrees of reduction from a fully articulated to a completely reduced segment are observed: (1) fully

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articulated segment; (2) fusion of two (or more) segments with reduction of articulation but with external suture still fully developed; (3) fusion of two (or more) segments with articulation fully and external suture partially reduced; (4) complete fusion of segments with reduction of articulation and suture. In dry mounted material only fully articulated segments of type (1) are visible; for recognizing types (2) and (3) it is necessary to make microscopical preparations. In this paper, unlike Chandler, we count also the segments of type (2), and arrive, therefore, usually at a higher number of antennal segments.

### **Cyathiger bellendeni sp. n.**

**Description.** Length 1.4 mm. Coloration chestnut brown, maxillari palpi and tarsi ochreous. Finely and confluent punctured, with short adpressed setosity. Head including eyes wider than long (0.26/0.31 mm), slightly narrower than pronotum. Frontal lobe wider than long (0.11/0.18 mm), with subparallel margins and rounded corners, with a deep, longitudinal groove in the middle bearing punctures. Interocular foveae indistinct, not differentiated from punctures. Fore-margin of eyes situated more or less in the middle of the head (0.11/0.11 mm). Head behind the eyes in dorsal view slightly converging to base, hind-margin straight. Lower head margin in profile behind the eyes almost straight, not costate. Eyes large. Antennae 7-segmented (Fig. 1); scape about twice as long as pedicel, slightly widening to apex; segment 3 (Fig. 2) slightly longer than pedicel with suture on inner side but without one on outer side; segments 4 to 6 subequal, slightly shorter than pedicel, segment 7 forming a large club. Apical segment of maxillari palpi (length 0.15 mm) glabrous, surface weakly granulate. Pronotum wider than long (0.29/0.33 mm), widest in apical third, strongly convex. Lateral foveae deep, mediobasal one slightly shallower. Elytra together wider than long (0.55/0.59 mm), widest in apical third, hind-margin very weakly convex. Humeral foveae deep, with shallow humeral groove, one small discal fovea visible, sutural fovea not visible. Abdomen with well developed, lateral, longitudinal carina and indistinct dorsomedian one; with transverse groove at the base of the first visible tergite.

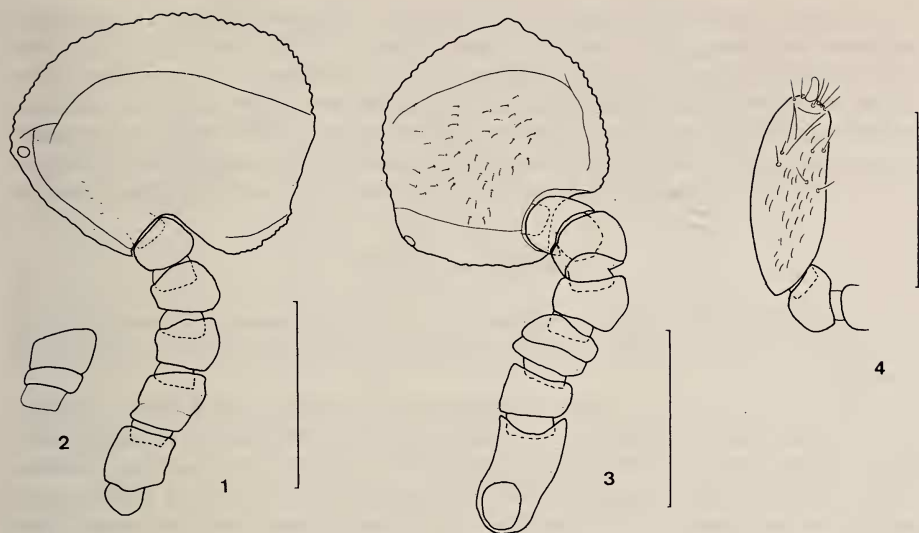
Sexual characters of male. Eyes large, oblong oval, with 25-30 ommatidia, strongly convex. Antennal club (Fig. 1) large, subtrapezoidal; inner surface concave with coarse granulation. Tibial groove of profemora with 3 widely separated teeth on anterior margin and a single tooth on posterior margin. Tibial groove of mesofemora without teeth on anterior margin and with a single tooth on posterior margin. Tibiae and metafemora simple. Median indentation of basal abdominal tergite delimited laterally by strongly sclerotized carinae bearing 3 recurved teeth. Pygidium slightly produced medially.

Aedeagus (Figs 5, 6) 0.22 mm long. Median lobe less than half the length of aedeagus. Internal sac little sclerotized, particularly in apical half, bearing a dorsal finger-like appendix. Parameres long, strongly bent in the middle; left paramere strongly sclerotized apart from apex; right paramere with large, little sclerotized lobe in apical half.

Female unknown (cf. comments).

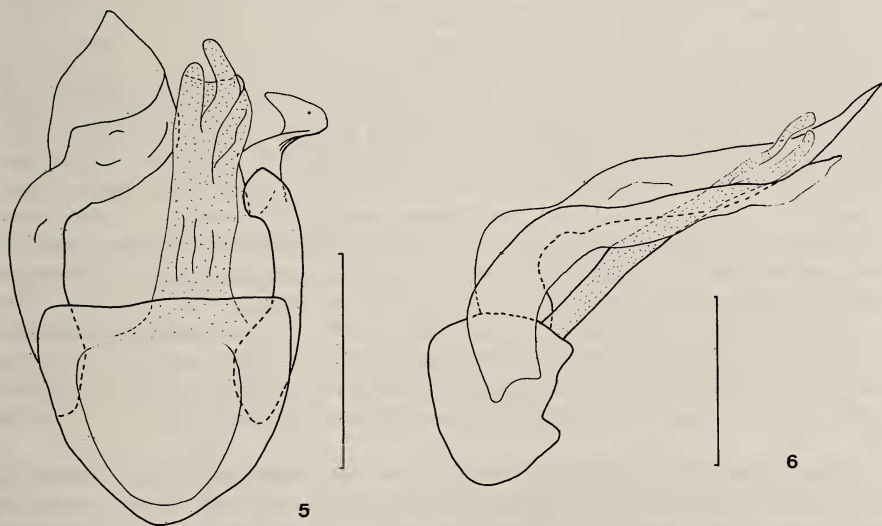
**Material examined.** Holotype  $\sigma$ : Australia: Queensland, Bellenden Ker Range, 1054 m, Cable Tower 3, 17.X.-5.XI.1981, Earthwatch/Queensland Museum, pitfall trap, rainforest, registration No. T. 10785, ANIC Coleoptera voucher No. 83-0508 (QM).

**Comments.** *C. bellendeni* is probably closest related to *C. lei* and *punctatus* based on the single tooth on the posterior margin of the tibial groove of the mesofemora. It differs from both in the aedeagal structure.



FIGS 1-4.

*Cyathiger*. 1, 3: inner surface of right antenna, scale = 0.2 mm; 2: outer surface of segment 3; 4: apical segments of maxillari palpi, scale = 0.1 mm. 1, 2: *C. bellendeni*; 3, 4: *C. leai*.



FIGS 5-6.

*Cyathiger bellendeni*, aedeagus, scale = 0.1 mm. 5: dorsal view; 6: lateral view.

A single ♀ with following data may belong to *C. bellendeni*: Australia: Queensland, Bellenden Ker Range, NQ, 1 km S. of Cable Tower 6, 17.16S, 145.53E, 17-24.X.1981. Earthwatch/Qld. Museum, Q. M. Berlesate No. 311, rainforest, stick brushings, ANIC Coleoptera voucher No. 83-0508 (ANIC). The ♀ specimen differs from the holotype of *bellendeni* mainly in the larger dimensions, the wider frontal lobe which has a shallow longitudinal groove, and the lower head margin which is more angular behind the eyes. As the identity of the specimen is not absolutely certain, it is excluded from the type-series.

### **Cyathiger leai** Chandler

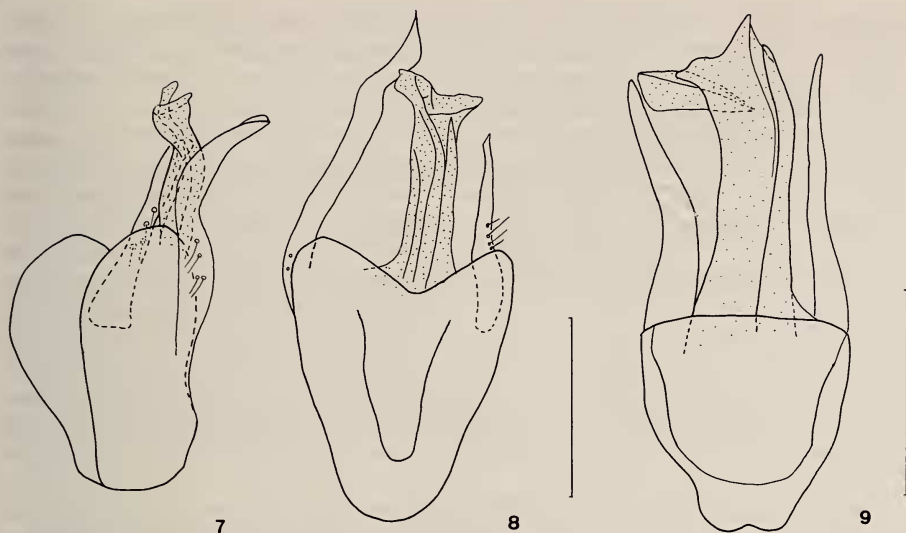
*Cyathiger leai* Chandler, 1986: 121. Holotype ♂: Australia: Queensland, nr. Cape Tribulation, 50 m, 16.06S, 145.27E, 21.VI.1971, Berlesate ANIC 322, rainforest (Taylor & Feehan) (ANIC), examined.

**Description.** Length 1.4 mm. Coloration dark reddish brown, maxillari palpi and tarsi ochreous. Finely and confluent punctured, with short adpressed setosity. Head including eyes wider than long (0.29/0.33 mm), slightly narrower than pronotum. Frontal lobe wider than long (0.15/0.22 mm), margin hardly converging to apex, apical corners rounded, longitudinal groove very shallow, bearing punctures. Interocular foveae inconspicuous, almost disappearing in punctuation. Fore-margins of eyes in dorsal view situated in the middle of the head (0.15/0.15 mm). Head in dorsal view behind the eyes broadly rounded. Lower head margin in profile behind eyes angular, not costate. Eyes well developed. Lower head surface with central tubercle and an elongate lateral tubercle on either side. Antennae (Fig. 3) 8-segmented; scape about twice as long as pedicel, widening to the apex; segments 3 and 4 fused, together about as large as pedicel, segments 5-7 subequal with pedicel, segment 8 forming a large club. Apical segment of maxillari palpi (Fig. 4) (length 0.11 mm) cylindrical with granulated surface and a group of setae on the inner apical half. Pronotum wider than long (0.29/0.35 mm), irregularly oval, widest in apical third, strongly convex. Mediobasal and lateral foveae small and inconspicuous. Elytra together wider than long (0.44/0.59 mm), widest in apical third, hind-margin almost straight. Humeral foveae small, indistinct, with only very shallow humeral groove, discal foveae not visible, sutural foveae small and indistinct. Wings developed. Tibial groove of profemora with 3 small teeth on anterior and one large tooth on posterior margin. Tibial groove of mesofemora without teeth on anterior and with one large tooth on posterior margin. Tibiae and metafemora simple. Abdomen with flat lateral, longitudinal carinae and with inconspicuous median one, and with a distinct transverse groove at the base of the first visible tergite. Pygidium strongly convex, with indistinct longitudinal carina in the middle.

Sexual characters of female. Antennal club smaller and less differentiated than in male, trapezoidal, ventral margin rounded, apical margin angular; surface on inner and outer side covered in tubercles and long setae. Median indentation of basal abdominal sternite shallower than in male, delimited laterally by sclerotized ridge with 3 recurved teeth.

Sexual characters of male. Eyes reniform, convex, consisting of 20-25 ommatidia. Antennal club (Fig. 3) large, subtrapezoidal, inner surface shallowly concave, bearing an evenly spaced, short setosity and granulation. Median indentation of basal, abdominal sternite delimited laterally by strongly sclerotized ridges bearing 3 recurved teeth.

Aedeagus (Figs 7, 8) 0.28 mm long. Median lobe about half the length of aedeagus, v-shaped. Internal sac with dorsal apical process, membranous. Left paramere long,



FIGS 7-9.

*Cyathiger*, aedeagus, scale = 0.1 mm. 7: *C. leai*, lateral view, holotype; 8, *C. leai*, dorsal view, paratype; 9: *C. kingi*, dorsal view.

slender, curved downwards, with a group of setae in basal half; right paramere styliform, with a group of setae in the middle. The aedeagus of a paratype (Fig. 8) is symmetrically inverse, a phenomenon which is relatively frequent in Pselaphidae (JEANNEL, 1955).

**Material examined.** Australia: Queensland, holotype ♂; 1♂, 1♀ paratypes, Thornton Range, 100 m, 24.VI.1971 (Taylor & Feehan); 1♀ paratype, same, 150 m, 23.VI.1971, 16.15S, 145.26E, rainforest, ANIC berlesate 324; 2♀ paratypes, Alexandra Bay, 50 m, 24.VI.1971, Berlesate ANIC 331, rainforest, 16.12S, 145.26E (Taylor & Feehan); 1♀ paratype, Mt. Lewis, 970 m, 29.VI.1973 (R. W. Taylor); 1♀ paratype, same, 1010 m, 20.VI.1971, Berlesate ANIC 319, rainforest, 16.33S, 145.13E (Taylor & Feehan).

**Comments.** This species is similar to *C. punctatus* King from which it differs, apart from antennal and aedeagal characters mentioned by CHANDLER (1986), in the shorter apical segment of the maxillari palpi, and the lower head margin behind the eyes which is carinate in *punctatus*.

### *Cyathiger kingi* Chandler

*Cyathiger kingi* Chandler, 1986: 122. Holotype ♂: Australia: Queensland, Dingo Creek, 1 km E Traveston, 26.28S, 152.48E, ca. 80 m, 18.III.1973, poor rainforest, Berlesate ANIC 456 (R. J. Kohout) (ANIC), examined.

**Description.** Length 1.4 mm. Coloration brown, maxillari palpi ochreous. Finely and confluent punctured, with short adpressed setosity. Head including eyes slightly wider than long (0.26/0.29 mm), slightly narrower than pronotum. Frontal lobe



wider than long (0.15/0.18 mm), with subparallel margins and rounded anterior corners, anterior part with shallow, longitudinal groove bearing punctures. Interocular foveae distinct though shallow. Fore-margin of eyes in dorsal view situated distinctly behind the middle of the head (0.15/0.11 mm). Head behind the eyes converging to base. Lower head margin in profile behind the eyes costate, slightly sinuous. Eyes well developed. Lower head surface with central tubercle. Antennae 8-segmented; scape about twice as long as pedicel, widening towards the apex; segment 3 transverse, half as long as pedicel, fused with segment 4, separated by a very fine suture; segment 4 of about the same dimensions as pedicel, segments 5-7 subequal, slightly shorter than pedicel; segment 8 forming a large club. Apical segment of maxillari palpi (length 0.18 mm) glabrous. Pronotum as long as wide (0.33/0.33 mm), irregularly oval, widest in apical third, strongly convex; with shallow lateral grooves, lower part slightly produced. Mediobasal fovea very deep and transverse, lateral foveae deep. Elytra together wider than long (0.48/0.59 mm), widest in apical fifth, hind-margin more or less straight. Humeral foveae deep., humeral groove short and shallow, sutural and discal foveae very inconspicuous. Abdomen with longitudinal, lateral and median carinae, and with a deep transverse groove at the base of the first visible tergite.

Sexual characters of male. Eyes reniform and slightly convex, consisting of about 25 ommatidia. Antennal club large, subreniform; inner surface strongly concave with even, fine punctation. Tibial groove of profemora with 6 irregularly spaced teeth on anterior margin and a single tooth on posterior margin. Tibial groove of mesofemora without teeth on anterior margin and with 2 close-set teeth on posterior margin. Tibiae and metafemora simple. Median indentation of basal, abdominal sternite delimited laterally by strongly sclerotized carinae bearing irregular teeth. Pygidium slightly produced medially.

Aedeagus (Fig. 9) 0.26 mm long. Median lobe less than half the length of aedeagus. Parameres simple, glabrous. Internal sac with membranous apical lobe.

Female unknown.

*Material examined.* Australia: Queensland, holotype ♂.

#### LITERATURE

- CHANDLER, D. S. 1986. A revision of the genus *Cyathiger* (Coleoptera: Pselaphidae). *Aust. ent. Mag.*, 12: 119-124.
- JEANNEL, R. 1955. L'édéage, initiation aux recherches sur la systématique des coléoptères. *Pub. Mus. Nat. Hist. Nat.*, 16: 155 pp.